

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



MAY 11 1905

U. S. Department of Agriculture

## HOW SHALL FORESTS BE TAXED?

By ALFRED GASKILL.

[Read before The Society of American Foresters, December 8, 1904.]

### THE SITUATION.

It is generally admitted that taxation in the United States is as faulty in principle and in practice as it can well be. A well-known writer,<sup>a</sup> in discussing the situation, says: "The outcome of all this is a system which powerfully contributes to arrest and hinder natural development, to corrupt society, and is without parallel in any country claiming to be civilized." This reproach applies with especial force to the taxation of woodlands, because the present practices favor and encourage the untimely or wasteful use of standing forests, discourage the propagation of others, and tend to hasten the time when the country shall be forced to face a wood famine.

The present paper, however, aims at no radical reorganization of the tax system. It simply presents the situation as it concerns the forest interests, makes several suggestions that seem to be reasonable and not impracticable, and invites a full discussion of the subject. The problem is intricate, and perhaps on that account has failed to receive the attention it deserves, but the time has arrived when its consideration can be put off no longer. The welfare of every State requires that it be faced. No other question concerning the woodlands of the country, save that of fires, is so important, and we shall make little substantial progress in the effort to induce private owners to maintain their forests until the present condition shall have been relieved, and the forests be so rated that they shall bear no more than their fair share of the cost of government.

It is true that the virgin forests of the South and West have not yet felt the burden of overtaxation to any great extent, but the cut-over lands do feel it. In all the older States, those wherein lumbering has greatly enhanced timber values, the tax levied upon standing timber is often a warning to the owner that he must cut it or run the risk of great loss, and when he has cut it the bare land is taxed so high that he is forced to abandon it.

A few attempts to correct the evil, through partial exemption, rebates, or bounties, have been made. But, though such measures

---

<sup>a</sup> David A. Wells, "The Theory and Practice of Taxation," p. 395. 1900.

may serve for a beginning, the real need is for laws that, recognizing the public utility of forests, adjust the necessary tax levies to the facts and conditions that govern tree growth, and to the long periods of time that are required to produce timber.

In general, it is assumed that taxes are imposed for the protection of person and property as well as for public necessities, yet rarely is the obligation extended to woodlands. The forest is not only allowed to go unguarded, but everyone may tramp and camp therein and do almost what harm he will. The common law and statutes relating to forest depredations are notoriously disregarded, and, though the conditions in some parts of the country have been bettered of late years, private forest and public suffers much damage from careless and malicious sojourners.

#### HOW FORESTS ARE TAXED.

Under the common practice of intrusting to local officers the levying of taxes upon real estate, forests are assessed, almost without exception, on the basis of agricultural land; that is, the land is estimated to have a certain value if cleared, and the standing timber is worth so much more, or is viewed as an encumbrance. The latter case is by no means rare in hardwood sections. In many instances, perhaps in most, the assessment is fair so far as the value of the property is concerned. In many others it is far too high, because the land is not fit for farming and therefore valueless except to grow trees. At the same time, the timber often has only a potential value, since it can not be marketed for want of roads or some other temporary unreadiness. The argument is entirely apart from the admitted inability of many of the assessors to truly value woodlands, and who therefore resort to guessing, and from the quite general belief that in cases where the owner is a corporation or a nonresident with no local interests, the property may be taxed to the limit. These things are not to be avoided under any system. In short, whether the assessment be made fairly or unfairly, the forest is considered a form of property which should be realized on at the earliest possible moment, and the more it can be made to yield to the county prior to its extinction the better for the county.

One can easily understand the temptation that confronts the assessors in regions where everything is wanted—roads, schools, public buildings—to use the taxing power for present advantage, yet instances are plenty of communities established on the returns from forest property and utterly abandoned as soon as the original timber was all cut. The few farms that had been taken could not keep up the roads and other public works.

But the wisdom or unwisdom of raising a revenue once for all upon forests is only a part of the question. True forest land is not farm land uncleared, and a forest is not the crop of a season. The problem



concerns itself chiefly with those areas which in their nature are fit only for tree growth, and with a crop representing the accumulated investment of the owner for as many years as were required to bring the trees to maturity. If a man buy a mature forest, he acquires the investment of another; if he plants, or waits for a natural one to grow, he gets no return for many years. In either case, his forest serves the public by providing a common necessity—wood—and by the beneficent influences that it gives freely.

These considerations make it apparent that forests occupy, or should occupy, a separate place on the tax list; that they need to be treated differently from farms and town lots and mines. In fact, it will be necessary to show that growing trees should be considered personal property, not real estate, as they now are by practice or law in virtually every State of the Union.<sup>a</sup>

### RATES OF TAXATION.

Without going deeply into details, a few instances may be given to show how the present methods tend to rid the forest owner of all but a temporary interest in his property, and, instead of encouraging the practice of forestry and the maintenance of the forests, put a premium on destructive lumbering.

A competent authority says that “in Wisconsin the taxes on forest property have been for years 3 cents to 40 cents per acre, without reference to changes in its condition or value.”<sup>b</sup> Forty cents is not unreasonable for an acre of forest containing 20,000 feet of white pine, since it represents a rate of but 4 mills if the stumpage is worth \$5 per thousand, but of course no owner would pay it after the timber had been logged unless he could reasonably expect to sell the land for farming. As a matter of fact, 37 per cent of the area of the State, once forested, consists of land too poor to be farmed, and may be bought for 25 to 50 cents per acre.<sup>c</sup>

The forest commissioner of Pennsylvania writes that on one of the few pieces of virgin forest still standing in the State, containing a little less than 1,000 acres, the annual tax is \$2.83 per acre. If the whole tract average 20,000 feet per acre of white pine worth \$10 a thousand on the stump—both estimates are high—the tax is 1.4 per cent of the value, or, counting the assessed value at two-thirds the sale value, as is the common rule, the yearly tax is over 2 per cent, and the owner assumes all the risk of loss by fire and depredation.

---

<sup>a</sup>The language of the statute of Massachusetts is: “Real estate, for the purpose of taxation, shall include all lands within the State and all buildings and other things erected on or affixed to the same.” The statute of New York declares, “The term land shall be construed to include the land itself, all buildings, structures, substructures erected upon, under, or above, or affixed to the same; all wharfs and piers \* \* \* all trees and underwood growing upon land; \* \* \*.”

<sup>b</sup>B. E. Fernow, *Economics of Forestry*, p. 252, 1902.

<sup>c</sup>Bulletin 16, Division of Forestry. Table II and p. 54. 1898.

The same authority states that denuded lands are commonly assessed at 50 cents to \$1.25 per acre, and that the usual levies amount to 25 to 30 mills. This means a yearly tax of  $1\frac{1}{4}$  to  $3\frac{3}{4}$  cents per acre. If the soil is capable of agriculture the burden is not great, but much of it is absolute forest land, and the owners often prefer to surrender it rather than pay the tax. The State forest reserve commission has bought at tax sales over 23,000 acres of such land for the accrued taxes and costs. In some cases these have been as low as  $2\frac{1}{2}$  cents per acre, though the average is somewhat higher. The commissioner instances one case where several parcels containing over 7,000 acres were bought in for a fraction over 8 cents per acre.

These figures are suggestive. They prove the passing of the forest in a State whose name indicates its original character, not entirely by the hand of the lumberman, but largely through the operation of its laws. They prove that a county as a landowner is poorer than as the recipient of even a small tax on that land. They prove that there is much land unfit for agriculture which presumably will bear forest, since it already has done so. They prove that the State which has bought a forest reserve now amounting to 700,000 acres, and is still buying, and which has made many worthy efforts to advance the cause of forestry, has still failed to secure the cooperation of private owners to any great extent because it persists in taxing their lands, especially their cut-over lands, at a rate that is unreasonable.

In North Carolina conditions are not much different. The common levy is 1 per cent on a 60 per cent valuation, or 6 mills on the estimated value. Where this value is justly assessed, there can be no reasonable complaint, but there is much guessing, and in one county it is reported that land partly lumbered or cut over as the forester advises, is taxed 25 per cent higher than virgin forest, on the ground that it is improved land. In other words, a penalty is imposed on conservative lumbering!

On the Pacific Coast a similar situation is found. The actual value of the great standing forests is undetermined and steadily growing, so that there is probably little overtaxing of virgin timber, but the burden on cut-over land is so great that large areas are relinquished every year. Some of this land may be taken up by settlers, but the rule is that when the counties become the enforced owners it remains unproductive, uncared for, and during the dry season a constant source of dangerous fires. A study of this question made in the State of Washington in 1900 developed the facts that in nine counties logged land was assessed 25 per cent to 50 per cent as high as that bearing standing timber and that much of it was abandoned on that account. In two counties 20 per cent of the logged land had been surrendered and in another 71 per cent.<sup>a</sup> A recent report from that section states

---

<sup>a</sup>E. T. Allen, "The Western Hemlock," Bulletin 33, Bureau of Forestry, p. 37.



that the sale value of logged land is rarely as high as the assessed value.

The figures given above will have more meaning, perhaps, if they be compared with what a forest can yield. Say that an acre of land produces in eighty years 7,000 feet B. M. of lumber, worth \$49 on the stump,<sup>a</sup> and that a tax of 2 cents is paid each year. If money be worth 5 per cent, the 2 cents paid annually eighty times amounts to \$19.42, or 40 per cent of the value of the crop!

#### INDUCEMENTS TO FOREST OWNERS.

In view of the facts that have just been stated, and of the very general interest manifested in forest preservation, it is reasonable to expect that the laws and practices of at least one State have been adjusted to the necessities of the situation. Unfortunately that is not the case, for, though many States have dealt with the subject within the past thirty years, not one has framed a law of the right kind. Connecticut exempts from tax for twenty years plantations of certain specified trees made on land not previously wooded; Wisconsin exempts shelter belts or wind breaks made and maintained in a certain way; Colorado, Indiana, Maine, Nebraska, New Hampshire, Pennsylvania, and Rhode Island give partial exemption on plantations or on *limited areas* of forest. None of the laws can apply to more than small woodlots. Illinois, Kansas, Wyoming, Minnesota, and Wisconsin give bounties for tree plantations, and Massachusetts, Minnesota, and Vermont offer premiums to encourage tree planters.

To these State measures is to be added the Federal act of 1873, known as the Timber Culture Law. This was intended to encourage tree planting on the public lands in the West, but was so abused that it was repealed in 1891.

The laws and practices of many States concerning the observance of Arbor Day evidence the desire and intent of the people to foster the growing of trees, but at the same time they prove the entire insufficiency of such measures to support one acre of commercial forest or to maintain existing woodlands for the common weal.

#### HOW FORESTS SHOULD BE TAXED.

In approaching this subject one naturally turns to those European countries in which forestry has become an art, for, manifestly, no oppressive burden of taxes could be borne where the growing of trees is found to be so profitable. The conclusions from such a study are two: (1) That the systems of taxation are so radically different from ours that only general principles can be applied here; and (2) that the

---

<sup>a</sup>This quantity is small for a plantation or for land that may be used as a farm, and the stumpage is low for localities where timber is scarce, or for select logs, but both figures are fair for large areas of ordinary uncared-for forest.

assessments are always based on the actual value of the forest, or on the earning power of the land, that is, its yield.

The first principle in all these laws is that the forest shall be considered and rated apart from the land upon which it stands. This principle finds universal acceptance in theory at least, though the practice differs in the various countries, and is based upon the fact that a forest is a crop of many years' growth and represents the owner's savings—the accumulated capital and interest on a time investment. This fact is as obvious here as it is there, and in my opinion makes it necessary for us to admit that in any piece of forest property the soil alone is realty, the growing trees are reinvested income—that is personality.<sup>a</sup>

To illustrate: A man has two fields. On one he raises corn, and year by year puts the value of the crop in bank or buys securities, which he holds and on which he pays, or should pay, a personal property tax. On the second field he plants trees; they thrive and make a good growth, but at the end of the season they are not convertible into money as the corn crop was. So it is for many years. The tree crop is made each season, but must be left on the stump until enough wood is accumulated to make it salable. Suppose the farmer, instead of selling his corn, had put it into a crib and added the second and third and each succeeding year's crop to the first; would he not accumulate personality in the crib of corn? He does the same with the product of his trees, but the result shows this difference: The crib of corn earns no increase; it represents only simple interest on the land; it is not like the money in bank that might have been obtained by selling the corn, which would earn compound interest by being reinvested with the accrued interest every year. In the growing forest, however, the increase in value is reinvested; the owner expects his trees to yield him a profit on the capital which they themselves represent, as well as on the capital which the land represents. But the two values—that of the trees and that of the land—are distinct.

It is thus evident that because the tree grower must reinvest his annual crop in stumpage it is no reason for considering it real estate. In the view that forests can be reproduced, trees are virtually movables, and the practice of rating them a part of the land is the fundamental error in every American State.

Theoretically it is as proper to tax growing grain as growing trees; but since the grain matures in one year, while the trees require many, and all our fiscal arrangements are based on annual returns, the trees should be taxed though the grain be exempt. Here, however, comes in the second principle in the taxation of forests, that it is unjust to

---

<sup>a</sup> The forests of the German States, for instance, are estimated to have 75 per cent to 85 per cent of their value in the timber and 25 per cent to 15 per cent in the land. M. Endres, "Forsten," in Conrad's *Handwörterbuch der Staatswissenschaften*, 1900.



require the owner to pay so long as the forest yields him nothing. There is no equity in making a man's other property carry his immature forest. In practice this works out in various ways. Most of the German States have not yet made the principle effective, but Baden exempts newly established forests from tax for twenty years (law of 1886). In Austria they are exempt for twenty-five years (law of 1869). In France three-fourths of the land tax is remitted for thirty years.<sup>a</sup> In connection with these laws it should be remembered that forests in Europe begin to yield salable material when they are from 20 to 30 years old. In most parts of the United States the productive period begins later, because there is no market for small wood.

This principle of exemption or rebate is familiar enough in this country, where undeveloped property of all kinds is taxed at a nominal rate. Farm land not cleared bears little. A comparison can not be made, however, with other forms of unproductive property—city lots, for instance. The owner of the latter produces nothing from his land; he hopes to gain by what others do. The forest owner, on the other hand, does produce something of value and will eventually pay a proper tax on it.

One reason why forest property is held in such high esteem in most of the countries of Europe is that the taxes are levied fairly. No matter how high the rate in any locality may be, the owner has the assurance of absolute equity in the valuation.

It would be impossible to apply the European system here with anything like the exactness that attaches to it in the old countries, because we have not the means of knowing the true worth of forest soil or of forest crops, but the principle is applicable anywhere. Even in the hands of nonexpert assessors it gives a fairer basis of valuation than our present method and in the long run will insure larger returns.

This is the equity of forest taxation; but the communities have another interest than that of revenue, namely, to maintain the forests in the greatest possible extent and effectiveness for the sake of lumbering and its many dependent industries, and for the influence that they have upon stream flow and the modification of climatic extremes. These subjects are beginning to be well understood, and need not be dwelt upon.

#### POINTS TO BE CONSIDERED.

The points that, in the writer's opinion, should be considered in any equitable scheme of forest taxation are the following:

(1) Forests are necessary to the public welfare, and consequently each Commonwealth should bear a part of the cost of maintaining them. This means that the State treasuries should assume a considerable part

---

<sup>a</sup> M. Endres, *Die Besteuerung des Waldes*, in *Forstwissenschaftliches Centralblatt*, p. 509, 1899.

of the obligation, and, as far as is proper, relieve the counties, because a region that is rich in forest is poor in everything else—population, farms, industries—and it is right that the cities and towns should contribute to the maintenance of conditions that are as important to them as they are to the people who live close to the forest borders. Exemptions and rebates, as usually allowed, do not meet this requirement, because the county bears the burden; that is, if one piece of property pays less, all the rest must pay a higher rate to make up the deficiency. In no case are exemptions justified, unless everyone who shares the burden of it is correspondingly benefited. If a piece of private forest serves to protect a drainage area, or is valued for its beauty, it is right for all who enjoy or profit by it to pay a proper share of the local taxes. For instance, if a town or village wants the owner of a woodlot to keep it for the people's pleasure they may remit the taxes on it, because no one else is concerned.

But a State can not properly declare that its forest reserve shall be untaxed, because such action robs the counties of the revenue that they need. New York, which holds the largest State reserve, recognizes this principle and pays local taxes on its land. Under a new law, enacted in 1905, Pennsylvania pays to the counties in lieu of taxes 5 cents a year for each acre of State land. The Austrian state forests pay taxes on land and income. With our National holdings the same principle should apply in all cases where land previously subject to taxation is taken over.

(2) A forest is a form of property whose value is potential or prospective most of the time; only when the trees are market ripe can an income be derived from it.

(3) In consequence of yielding periodic returns, the greater part of the tax to be paid upon a forest should fall due when the timber is sold, and not be made a burden upon the other property of the owner through many years. The periods at which forests may yield returns should not be considered as the full time required to grow the average tree; some trees mature much more quickly than others, and all natural forests contain trees of various sizes and ages. It is doubtful if any forest, containing the usual diversity in size or species, and now market-ripe, would not yield again within twenty years if cut carefully. This point is often overlooked, yet it is of great importance in considering the periods during which a given piece of forest would pay only the ground tax.

(4) The deferred tax should bear a fair relation to the net yield of the property; that is, it should not exceed a sum that will leave the owner the equivalent of a fair annual return on his investment.

(5) Forests occupying land of the kind here considered grow too slowly in most situations to yield by their annual increment a rate of



interest comparable with that commonly expected from ordinary business enterprises, though they may easily produce wood at a rate that will compare favorably with the interest derived from State or national obligations.

(6) Forests are exposed to unusual risks from fire and depredation, owing to their very general use by the public.

### OBJECTIONS.

What are the objections that may be urged to a law embodying these principles? The fundamental proposition—that forests be assessed apart from the land upon which they stand—suggests a radical change in the tax system of most States; but forestry itself is radical and demands new methods. Apart from that the only difficulty is to fix the values of land and forest. If it be admitted that forest owners are entitled to special rates on such property on account of its public value, the constitution of no State is likely to prove a bar to the necessary legislation, since existing bounty and exemption acts evidence the power of the legislatures. But if such difficulty be encountered it probably can be overcome by putting forests into a special class for purposes of taxation. The real questions, then, are how to fix the value of a forest and how to provide for the collection of the tax at intervals. The problem is less difficult than it appears to be. If the land alone is made to pay a yearly tax on its actual value, determined by the assessors in the usual way, the county gets at least as much income as it would if the forest were not there.

Then let the whole question of timber value be determined by what it sells for, and base the forest tax on that. Everything that comes out of the forest must pay the accepted rate of tax. Of course, safeguards must be provided; intermediate yields as well as the main crop must pay their shares, a proper return of quantities and value of material sold or used must be insured, and provision made for an adjustment of loss in the event of serious damage to the property by fire or storm. If theft is committed, it may be assumed that the county is equally responsible with the owner. The county being thus protected against loss, the owner, on the other hand, must be assured that the rate will not be raised when it is known that his timber is ready for market. The deferred returns from this source would be viewed as sinking-fund accumulations, or they might be used as a basis for bond issues to supply special needs.

A law framed along these lines would, of course, have to be adapted to local conditions and practices. Its proper execution would involve some increase in the executive personnel, yet even without that the change could not fail to be an improvement on the present system.

## HOW THE PLAN WOULD WORK.

It is difficult to illustrate this plan as applied to a forest already grown, but which may not be cut for several years, without accurate knowledge of the value of the stand and of local conditions. Perhaps it would be found safe and entirely reasonable, in most cases, to remit the taxes until the trees were cut and then collect a definite proportion of the net yield for each year that tax had been unpaid. The difficulty naturally is to determine what that proportion should be, and it can only be settled by applying the principle to concrete cases.

But it is possible to find an illustration in an example of a forest grown on ground that is now bare. Let it be assumed that 50,000 acres of pine land in Michigan, valued at \$1 per acre, will yield, eighty years hence, 350,000,000 board feet of lumber, worth \$7 per thousand on the stump. The figures are conservative, and if a young forest be already started on a portion of the area, so much the better. If the local tax levy is 2 cents, on a two-thirds valuation, the land will pay to the county  $1\frac{1}{3}$  cents per acre, or \$666.67 per year. Then, if the State pay half a cent per acre on account of the public utility of the forest (see p. 7) the county will receive \$250 more, or a total of \$916.67 yearly. In practice, the forest would begin to yield something after thirty or forty years, but for the sake of simplifying the calculation let it be assumed that it is all cut at the end of eighty years. How much of the sale price should the county get? The forest at 1 year old is actually worth nothing, hence no tax can properly be charged against it. At 2 years old it is nearer maturity, but still has only an "expectation value," based upon what the mature trees may yield. In short, the value increases year by year from nothing to \$2,450,000, when it is 80 years old.

The values upon which a tax might be levied each year are thus difficult to determine, but an average may be assumed to be the expectation value of the forest when it is over 40 years old. That is \$2,450,000 discounted at 4 per cent for forty years, or \$510,310. Then if exemption were allowed for the first thirty years the collectible tax would be the accepted rate paid on that sum yearly for fifty years. It is manifest that the accepted rate can not be the same as that applied to the land—2 per cent on a two-thirds valuation—for when continued fifty years the sum of the taxes amounts to nearly half the final value of the crop. Such a proportion is prohibitive, and it must be admitted that forests can not pay the high rates commonly levied on real estate—at least, not until the crop is worth relatively more than it is now. This fact is strongly emphasized if we ignore all rebates and allowances and say that the forest shall pay  $1\frac{1}{3}$  per cent of its value yearly. Eighty times  $1\frac{1}{3}$  per cent equals  $106\frac{2}{3}$  per cent; in other words, the whole crop would not pay the tax.



For the purpose of the present illustration, it may be assumed that the rate is one-half of 1 per cent, and, again, that money is worth 4 per cent. The total return at the time the timber is cut will then be \$389,537, or about 16 per cent of the stumpage price. It is possible that in some cases the county might claim more. The figures in any event would depend largely upon the length of time involved; but bearing in mind the importance of encouraging the owner to keep his forest standing, the proportion may be accepted as about what should be paid. The county is distinctly better off than it would be under the present system, for, instead of uncertain returns or no revenue at all, if the land were relinquished, it has the assurance of a reasonable yearly revenue from the land, and a lien upon the mature forest for a further sum which, discounted at 4 per cent, is equal to \$706.65 a year.

This example does not pretend to be exact in any respect; it is purely illustrative; yet if the land value, the yield, and the interest rate be accepted as reasonable, the following table will show that both owner and community are treated fairly. If the owner's profit appear too small for the risk involved it should be remembered that no allowance is made for a very probable advance in land and stumpage values.

*Comparison of tax collected and owner's profit from a forest of 50,000 acres yielding timber worth \$2,450,000 after eighty years.*

County's interest.	Owner's interest.
Yearly revenue from land ..... \$666.67	Investment:
Yearly revenue from State..... 250.00	Land at \$1 per acre..... \$50,000
Yearly revenue from forest, calculated	Capital to produce \$666.67 yearly for
from final return..... 706.65	land tax and \$1,000 yearly for man-
	agement..... 41,667
Total ..... 1,623.32	Total ..... 91,667
Or practically 3¼ cents per acre = 3¼ per cent on	Receipts:
a value of \$1.	For stumpage ..... 2,450,000
	Value of land ..... 50,000
	Capital set aside to pay taxes and
	management..... 41,667
	Gross total ..... 2,541,667
	Less deferred tax..... 389,537
	Net total ..... 2,152,130
	Profit = 4 per cent (about) compound interest
	on the investment.

CONCLUSION.

In conclusion, forest taxation is peculiarly a legal question which each State must consider individually and without interference from the National Government. Any enactment must harmonize with the fundamental law and do justice to all interests. Opposition to any measure is sure to be encountered, and for that reason a radical proposition has some advantage over one which, like an exemption act, would seem to favor a class. Emphasis needs to be laid upon the point that whereas the ability of most of the States of the Union to acquire forest

reserves is limited by lack of revenue, those which contain the largest areas of private woodlands have the power above all others to keep the forest in those places that are naturally adapted to it.

From these considerations it appears that the actual situation can be met only by accepting a principle in taxation which shall definitely recognize the public value of growing forests and in its application strive to maintain them as the sources of material needed in important industries and as valuable climatic factors. This means that private property in forests should be taxed with reference to three considerations: (*a*) Necessity—the support of the local government; (*b*) equity—an assessment based upon the actual yield, collection of the tax (on the trees, not on the land) deferred until the crop is sold, and a recognition of the peculiar risks—fire, trespass, etc.—to which forests are subject; (*c*) encouragement—a special rating of the property to compensate the owner for whatever expense attaches to maintaining the forest in a condition that best serves the public interest.





